

Date: Tuesday, 6/19/2007 11:46:28 AM
 User: Kim Johnston

Process Sheet

31

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 407 FWD X-TUBE
 Job Number : 32932
 Estimate Number : 12348
 P.O. Number : N/A Part Number : D407667105
 This Issue : 6/19/2007 S.O. No. : N/A Drawing Number : D407-667-145 REV B
 Prsht Rev. : NC Project Number : N/A
 First Issue : N/A Type : LANDING GEAR Drawing Revision : N/A
 Previous Run : 30781 Material : N/A
 Due Date : 7/30/2007 Qty: 1 Um: Each
 Written By :
 Checked & Approved By : 07.06.19
 Comment : Est Rev.F 05.09.01 Add holes for compatibility with Bell
 Skidtubes KJ/JLM

Additional Product

Job Number:



Seq. # Machine Or Operation: Description:

1.0 DC DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP-D407-667-105 CHG002

2.0 LANDING GEAR 1 LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

PULL FROM STOCK

1 X D407-667-105 B 19140 CHG001

1 X D407-667-105 B CHG001

3.0 D407667105 FWD Crosstube



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

FWD Crosstube

~~B79490~~

4.0 D2856400 Abrasion Strip



Comment: Qty.: 1.2138 f(s)/Unit Total: 1.2138 f(s)

Pick:

Qty Part number Description Batch

2 D2856-400(Cut to 6.94") Abrasion Strip

5.0 D2873043 Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-043 Nut Plate

29286

ET 07-08-13

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 6/19/2007 11:46:28 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 FWD X-TUBE

Job Number: 32932

Part Number: D407667105

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

D2873045

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-045

Nut Plate

32164

RT 07-08-13

7.0

D28911

Support 2.25 dia



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2891-1

Support

NA

8.0

MS20601AD4W10

RIVET



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Pick:

Qty Part number Description Batch

14 MS20601AD4W10 Rivet

104093

RT 07-08-13

9.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-20

Clamp

NA

10.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install abrasion strips as per QSI 035 using DT8579. Note: (3) top holes should be facing up.

2-Install supports and clamps as per Dwg D407-667-145. Torque clamps to 80-100 in lb

3-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron paint.

RT 07-08-13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 6/19/2007 11:46:28 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 FWD X-TUBE

Job Number: 32932

Part Number: D407667105

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC5

INSPECT WORK TO CURRENT STEP



207-08-24 (1)



Comment: INSPECT WORK TO CURRENT STEP

12.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING
REPAINT CUFFS

ml 07 07 08 24

(1)

13.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

25 07 - 08 - 25

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

VERIFY ALL PARTS & QTY'S ARE IN ORIGINAL KIT

15.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Bolt
Batch: *M 11931*

SG

16.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Nut
Batch: *M 5289*

SG

17.0

AN510A

Bolt



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
Batch: *M 104936*

SG

18.0

AN530A

BOLT



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Pick: Packing Kit
Qty Part number Description Batch
4 AN5-30A Bolt *M 9522*

7/8/28 SG

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: FD Date: 07/28/30
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 6/19/2007 11:46:28 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 FWD X-TUBE

Job Number: 32932

Part Number: D407667105

Job Number:



Seq. #:

Machine Or Operation:

Description :

19.0

AN960JD516

Washer



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick: Packing Kit

Qty Part number Description Batch

18 AN960JD516 Washer

7/8/28 SD

20.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

SD 07/08/29

21.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D407-667-105

Location:

PPP Rev:

7/8/29 SD

22.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

① 07/08/30

Job Completion



u 07-08-29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	32932
Description: Crosstube Assembly	Part Number:	D407-667-145
Inspection Dwg: D407-667-145 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ **First Article**
☐ **Prototype**

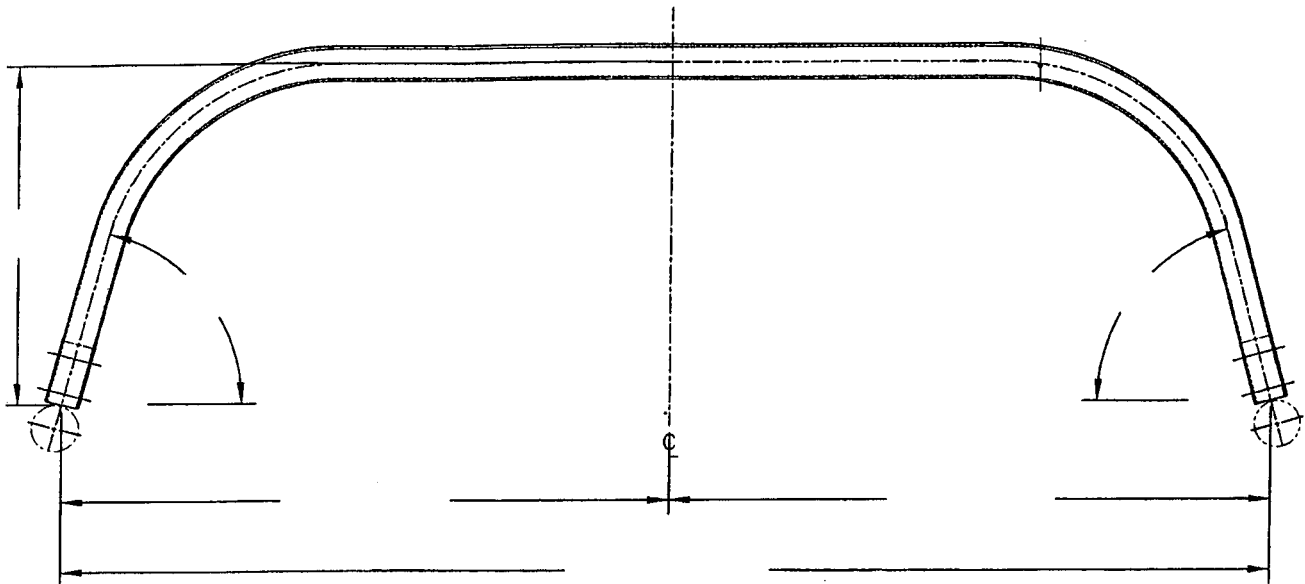
Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000					
	1.865	+0.005/-0.000					
	1.878	+0.005/-0.000					
	1.970	+0.005/-0.000					
	2.030	+0.005/-0.000					
	2.165	+0.005/-0.000					
	0.125	+/-0.010					
	R0.063	+/-0.010					
	R0.500	+/-0.010					
	R0.063	+/-0.010					
	4.438	+/-0.010					
SIDE B	2.240	+0.005/-0.000					
	1.865	+0.005/-0.000					
	1.878	+0.005/-0.000					
	1.970	+0.005/-0.000					
	2.030	+0.005/-0.000					
	2.165	+0.005/-0.000					
	0.125	+/-0.010					
	R0.063	+/-0.010					
	R0.500	+/-0.010					
	R0.063	+/-0.010					
	4.438	+/-0.010					
	113.20	+/-0.020					

Measured by:		Audited by:		Prototype Approval:	N/A
Date:		Date:		Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-105)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	

DART AEROSPACE LTD		Work Order:	32932
Description: Crosstube High Fwd (407)		Part Number:	D407-667-105
Inspection Dwg: D407-667-145 Rev: B		Page 1 of 1	

Required Dimension	Min	Max
Height	23.48	23.60
1/2 Span	45.88	46.0
Angle	54	56
Total Span	91.76	92.0



Comments

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	<i>[Signature]</i>



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED DS	APPROVED DS	DRAWING NO. D407-667-145	REV. 8 SHEET 1 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (407 HIGH FWD) SCALE NTS	
A	02.05.08	NEW ISSUE	
B	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	

RELEASED
05.07.26

UNDER REVIEW
06.08.10
re-draw detail
PH
07.06.19

Qty	Part Number	Description
X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
1	D6010-115	CROSSTUBE
2	D2856-400-694	ABRASION STRIP
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
2	D2891-1	SUPPORT
14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
4	MS21920-20	CLAMP

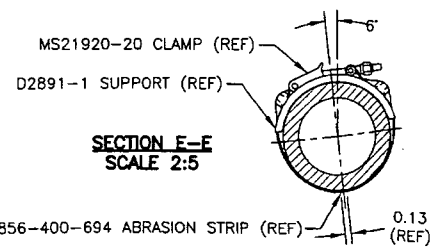
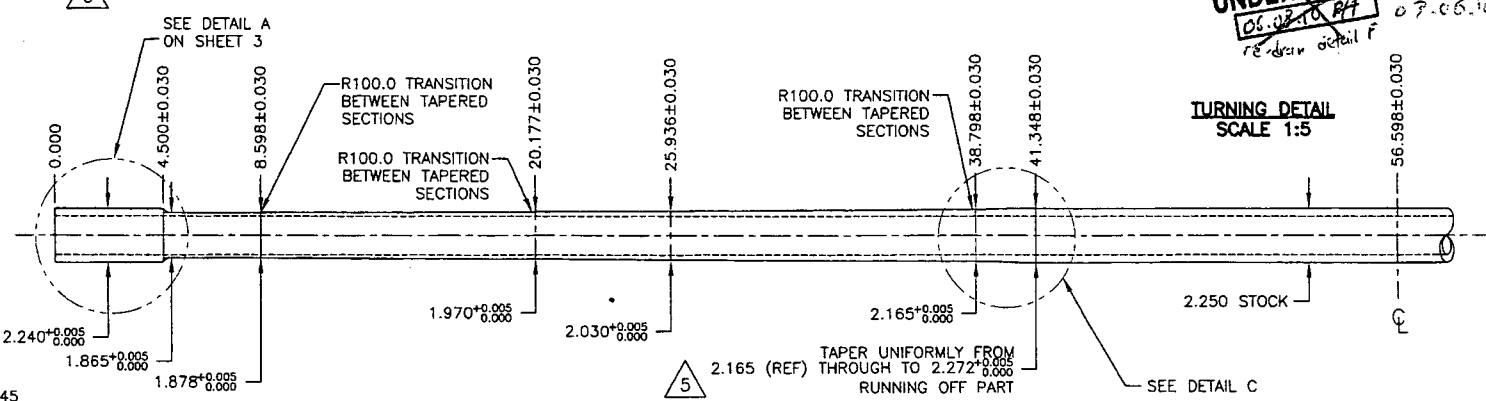
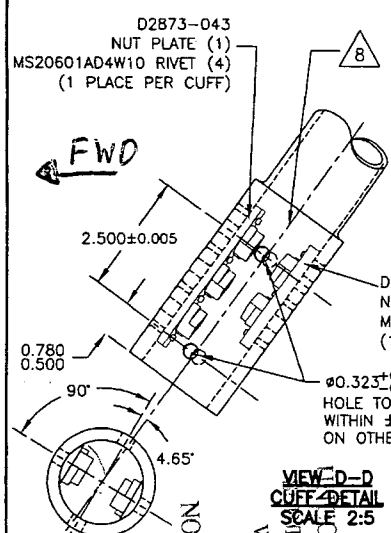
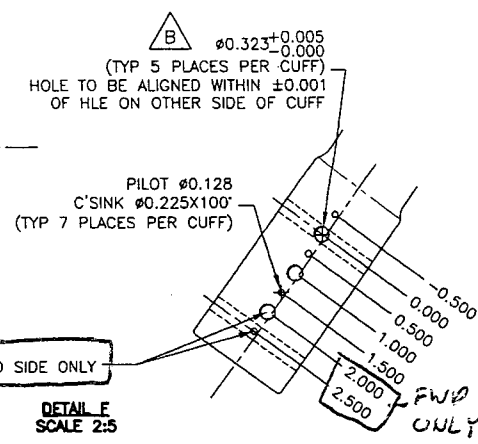
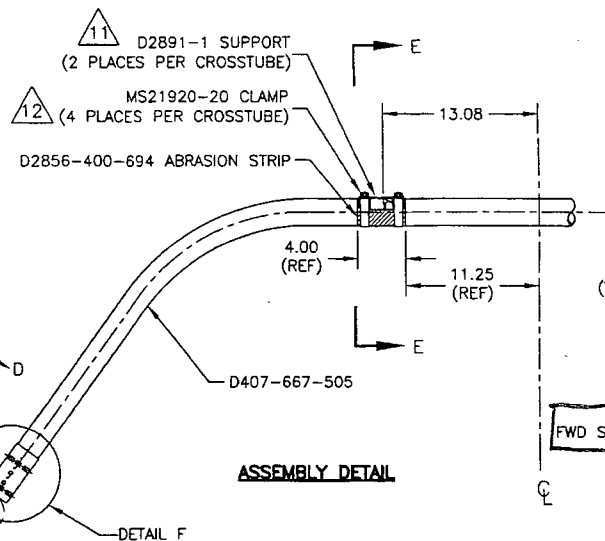
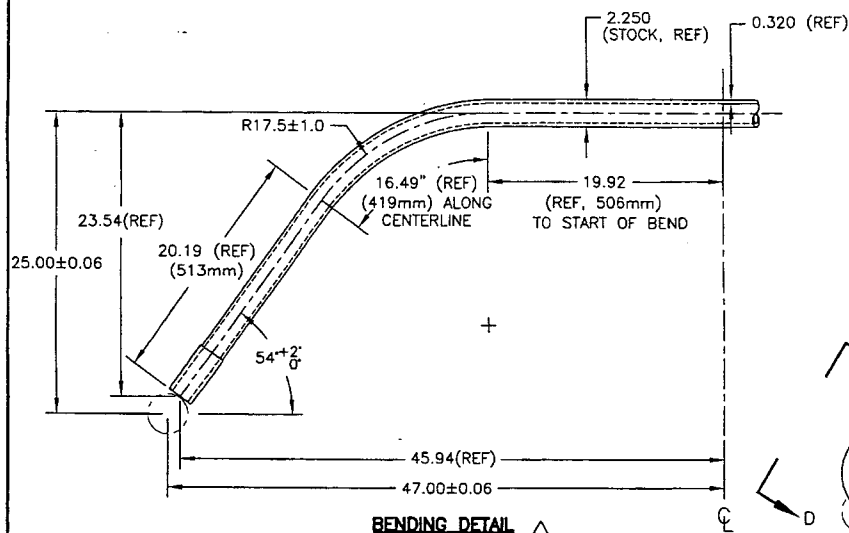
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE COPY
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS RETURN TO
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT ENGINEERING
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. UNCONTROLLED COPY
11) SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT. SUBJECT TO AMENDMENT
(OPTIONAL). WITHOUT NOTICE
12) TORQUE CLAMPS 80 TO 100 IN-LB. WORK ORDER

NO. 32932

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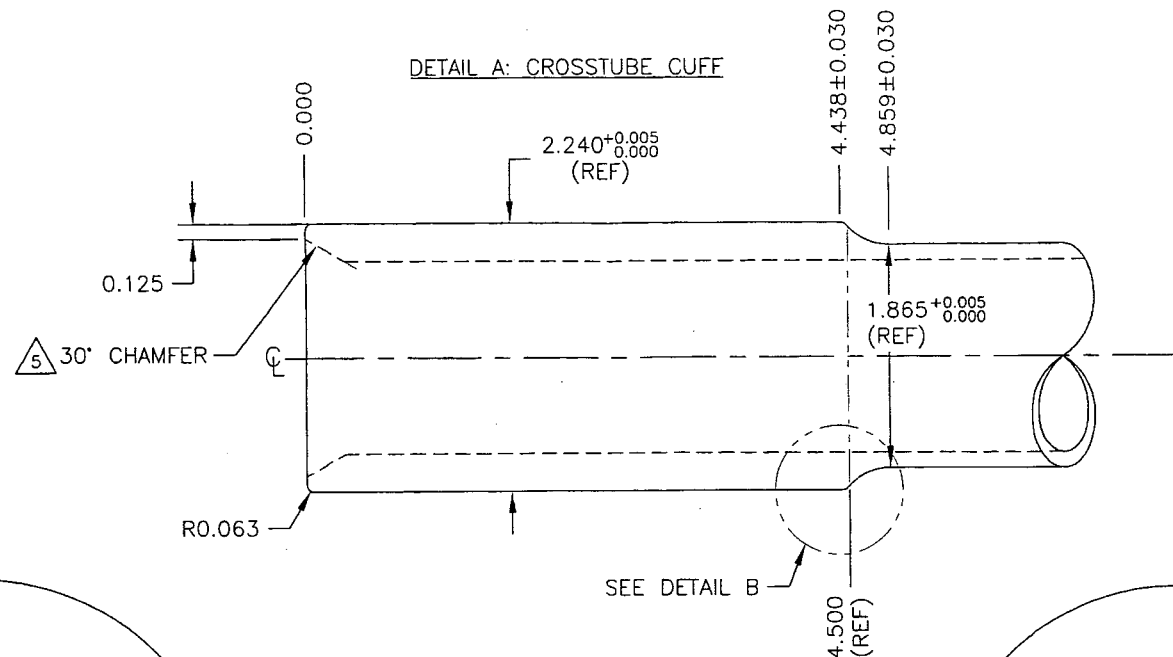


UNDER REVIEW
05.07.10
07.06.10

RELEASED
05.07.26

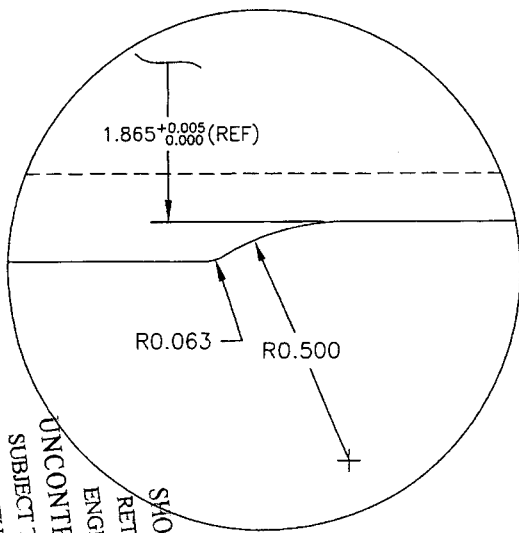
COPYRIGHT © 2002 BY DART AEROSPACE LTD.		DESIGN PH	DRAWN BY PH	DART DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA	REV. B
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED # OS	APPROVED # DS	DRAWING NO. D407-667-145	SHEET 2 OF 3
		DATE 05.07.26	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)		SCALE 1:10

NO. 32932
WORK ORDER
WITHOUT NOTICE
ENGINEERING
RETURN TO
SHOP COPY

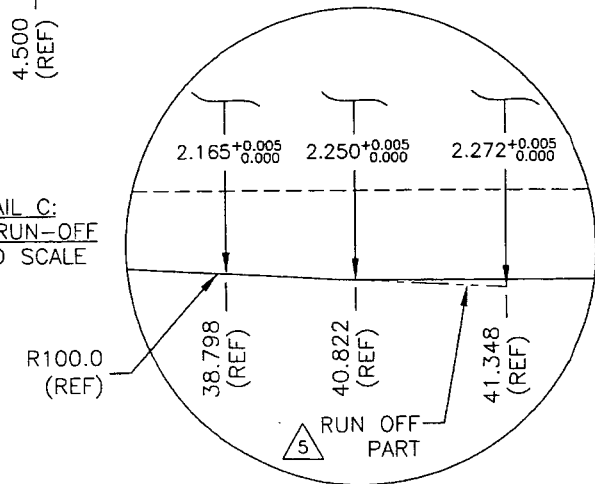


UNDER REVIEW PH
 05-07-10 PH
 Fe-drawn detail F 02.06.10

05-07-16



DETAIL C:
 TAPER RUN-OFF
 NOT TO SCALE



NO. 2293-2
 WORK ORDER
 SUBJECT TO AMENDMENT
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 ENGINEERING
 RETURN TO
 SHOP COPY

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CHECKED		DS	DS	DRAWING NO.	REV. B
DATE		05.07.26		D407-667-145	SHEET 3 OF 3
				TITLE	SCALE
				CROSSTUBE ASS'Y (407 HIGH FWD)	1:1